

Appl. No. 09/933,125

Amdt. Dated: November 18, 2004

Reply to Office Action of: June 18, 2004

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of claims:

Claims 1 to 58 (previously cancelled).

Claim 59. (currently amended) A rechargeable cell that performs at least twenty-five discharge and charge cycles comprising:

a cathode having an electrochemically active powder including an oxide of manganese;

an anode comprising an anode composition, said anode composition comprising an electrochemically active zinc alloy powder [, wherein said composition is manufactured by a method comprising the steps of mixing said zinc alloy with an alkaline electrolyte solution, an organic surfactant, an indium compound, and a gelling agent, such that said indium compound is added in an alkaline environment], said anode composition further comprising an organic surfactant, an indium compound, and a gelling agent;

a separator including at least one semipermeable membrane;

and an electrolyte solution in the separator, the cathode and the anode, and filling pores thereof;

wherein when the cell is an AA size cell or an IEC LR6 cell, and when the cell is deep-discharged from 1.65 V through a 3.9- Ohm resistor load to 0.80V, after the twenty-fifth of the at least twenty-five cycles, the cumulative performance of the cell is at least 18.98 Ah.

Claim 60. (original) The rechargeable cell of claim 59, wherein said indium compound is

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comprised of a first indium compound and a second indium compound.

Claim 61. (original) The rechargeable cell of claim 60, wherein said first and second indium compound is selected from the group consisting of indium sulfate solution, indium sulfate powder, indium oxide solution, indium oxide powder, indium hydroxide solution, indium hydroxide powder, indium acetate solution, and indium acetate powder and any combination thereof.

Claim 62. (original) The rechargeable cell of claim 60, wherein the indium compound makes up from about 0.05 to about 0.5% by weight of the electrochemically active zinc.

Claim 63. (original) The rechargeable cell of claim 59, wherein said anode composition further comprises a nucleation additive selected from the group consisting of magnesium oxide, magnesium hydroxide, calcium oxide, calcium hydroxide, zirconium oxide, or any combination thereof.

Claim 64. (original) The rechargeable cell of claim 63, wherein said nucleation additive is present up to 2.5% by weight of the anode.

Claim 65. (original) The rechargeable cell of claim 59, wherein said electrochemically active zinc material comprises a metallic zinc or a zinc alloy.

Claim 66. (original) The rechargeable cell of claim 59, wherein said organic surfactant is present in the range of from about 0.1% to about 0.25% by weight of said electrochemically active zinc material.

Claim 67. (original) The rechargeable cell of claim 59, wherein said alkaline electrolyte comprises an aqueous solution of potassium hydroxide having a concentration of about 5.5 molar to about 12 molar.

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Claim 68. (original) The rechargeable cell of claim 67, wherein said electrolyte is added in a first and second portion.

Claim 69. (original) The rechargeable cell of claim 66, wherein said first portion of said electrolyte is about 100% of total volume of electrolyte.

Claim 70. (original) The rechargeable cell of claim 68, wherein said first portion of said electrolyte is between about 20% and about 60% of total electrolyte volume.

Claim 71. (original) The rechargeable cell of claim 70, wherein said first portion of said first portion of said electrolyte is about 40% of total volume of said electrolyte.

Claims 72 to 83: Cancel.

Claim 84. (new) A rechargeable cell that performs at least twenty-five discharge and charge cycles comprising:

a cathode having an electrochemically active powder including an oxide of manganese;

an anode comprising an anode composition, said anode composition comprising an electrochemically active zinc alloy powder said anode composition further comprising an alkaline electrolyte solution, an organic surfactant, an indium compound, and a gelling agent;

a separator including at least one semipermeable membrane;

and an electrolyte solution in the separator, the cathode and the anode, and filling pores thereof;

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wherein when the cell is an AA size cell or an IEC LR6 cell, and when the cell is deep-discharged from 1.65 V through a 2.2- Ohm resistor load to 0.80V, after the twenty-fifth of the at least twenty-five cycles, the cumulative performance of the cell is at least 15.41 Ah.

Claim 85. (new) The rechargeable cell of claim 59, wherein said indium compound is comprised of a first indium compound and a second indium compound.

Claim 86. (new) The rechargeable cell of claim 60, wherein said first and second indium compound is selected from the group consisting of indium sulfate solution, indium sulfate powder, indium oxide solution, indium oxide powder, indium hydroxide solution, indium hydroxide powder, indium acetate solution, and indium acetate powder and any combination thereof.

Claim 87. (new) The rechargeable cell of claim 60, wherein the indium compound makes up from about 0.05 to about 0.5% by weight of the electrochemically active zinc.

Claim 88. (new) The rechargeable cell of claim 59, wherein said anode composition further comprises a nucleation additive selected from the group consisting of magnesium oxide, magnesium hydroxide, calcium oxide, calcium hydroxide, zirconium oxide, or any combination thereof.

Claim 89. (new) The rechargeable cell of claim 63, wherein said nucleation additive is present up to 2.5% by weight of the anode.

Claim 90. (new) The rechargeable cell of claim 59, wherein said electrochemically active zinc material comprises a metallic zinc or a zinc alloy.

Claim 91. (new) The rechargeable cell of claim 59, wherein said organic surfactant is present in the range of from about 0.1% to about 0.25% by weight of said electrochemically active zinc material.

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Claim 92. (new) The rechargeable cell of claim 59, wherein said alkaline electrolyte comprises an aqueous solution of potassium hydroxide having a concentration of about 5.5 molar to about 12 molar.

Claim 93. (new) The rechargeable cell of claim 67, wherein said electrolyte is added in a first and second portion.

Claim 94. (new) The rechargeable cell of claim 66, wherein said first portion of said electrolyte is about 100% of total volume of electrolyte.

Claim 95. (new) The rechargeable cell of claim 68, wherein said first portion of said electrolyte is between about 20% and about 60% of total electrolyte volume.

Claim 96. (new) The rechargeable cell of claim 70, wherein said first portion of said first portion of said electrolyte is about 40% of total volume of said electrolyte.

Claim 97. (new) The rechargeable cell of claim 59, wherein after the twenty-fifth of the at least twenty-five cycles the cumulative performance of the cell is at least 19.00 Ah

Claim 98. (new) The rechargeable cell of claim 97, wherein after the twenty-fifth of the at least twenty-five cycles the cumulative performance of the cell is at least 20.00 Ah

Claim 99. (new) The rechargeable cell of claim 98, wherein after the twenty-fifth of the at least twenty-five cycles the cumulative performance of the cell is at least 21.00 Ah

Claim 100. (new) The rechargeable cell of claim 84, wherein after the twenty-fifth of the at least twenty-five cycles the cumulative performance of the cell is at least 16.00 Ah.

Claim 101. (new) The rechargeable cell of claim 100, wherein after the twenty-fifth of the at

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least twenty-five cycles the cumulative performance of the cell is at least 17.00 Ah.

Claim 102. (new) The rechargeable cell of claim 101, wherein after the twenty-fifth of the at least twenty-five cycles the cumulative performance of the cell is at least 18.00 Ah.

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